Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-9 (canceled).

Claim 10 (currently amended): The microfluidic structure of claim [[9]]21, wherein each of the ~~first~~ second electrode and the ~~second~~ third electrode comprises a respective elastic layer.

Claim 11 (currently amended): The microfluidic structure of claim [[9]]21, wherein ~~each of~~ the first electrode ~~and the second electrode~~ comprises an elastic conducting polymer.

Claim 12 (currently amended): The microfluidic structure of claim [[9]] 21, wherein at least one of the ~~first~~ electrodes ~~and the second electrode~~ comprises indium tin oxide.

Claim 13 (currently amended): The microfluidic structure of claim [[9]] 10, wherein the elastic layer comprises one or more layers each comprising rubber, thermoplastic rubber, silicone rubber, a fluoroelastomer, acrylic, cyclic olefin copolymer (COC), a urethane, polymethylmethacrylate (PMMA), polycarbonate, polytetrafluoroethylene, polyvinylchloride (PVC), polydimethylsiloxane (PDMS), a polysulfone, a siloxane, or a polyamide.

Claim 14 (canceled).

Claim 15 (currently amended): The microfluidic structure of claim [[9]] 21, wherein:

at least one of the electrodes comprises electrode segments disposed along the length of the microchannel within which the electrode is located; and

the microfluidic structure additionally comprises a circuit operable to apply voltage to the electrode segments independently.

Claim 16 (currently amended): The microfluidic structure of claim 15, wherein the circuit is operable to apply the voltage to the electrode segments sequentially along the length of the microchannel within which the electrode segments are located.

Claim 17 (currently amended): The microfluidic structure of claim 15, wherein ~~both~~ the electrodes in the same microchannel comprise electrode segments disposed in pairs along the length of the microchannel.

Claim 18 (currently amended): A method for pumping fluid through a microchannel in a microfluidic structure, the method comprising:

providing the microfluidic structure of claim 15;

establishing voltage differences between the electrode segments and the other electrode in the same microchannel in a sequence progressing along the length of the microchannel such that electrostatic seals sequentially formed between the electrode segments and the other electrode displace the fluid in a desired direction.

Claim 19 (currently amended): A method for electrostatically forming a seal in a microchannel in a microfluidic structure, the method comprising:

providing the microfluidic structure of claim [[9]] 21; and

applying a voltage difference between the first electrode and the second electrode, or between the first electrode and the third electrode to form the seal between the electrodes and block the corresponding microchannel.

Claim 20 (canceled).

Claim 21 (new): A microfluidic structure comprising:

a substrate;

an upper microchannel defined in the substrate;

a lower microchannel defined in the substrate;

a first electrode located in an elastic layer separating a lengthwise portion of the upper and the lower microchannels;

a second electrode located in the upper microchannel opposite the first electrode; and

a third electrode located in the lower microchannel opposite the first electrode,

wherein the first electrode is capable of moving toward the second and forming a seal with the second electrode in response to a voltage difference between the first electrode and the second electrode, and

wherein the first electrode is also capable of moving toward the third electrode and forming a seal with the third electrode in response to a voltage difference between the first electrode and the third electrode.